

# *Agathidium* from Thailand: expedition 1985 of the Geneva Natural History Museum (Coleoptera, Leiodidae, Anisotomini)

by

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With 58 figures

## ABSTRACT

Descriptive and/or field data are presented on 302 specimens, 14 species, of *Agathidium* collected in Thailand by Drs. H. Burckhardt and I. Löbl.

New descriptions: *Agathidium ducentesimum* n. sp., *A. ilvense* n. sp., *A. scutellare* n. sp., *A. incognitum* n. sp., *A. fungivorum* n. sp., *A. silvestre* n. sp., *A. silvarum* n. sp., *A. infuscatum* n. sp., *A. capitulatum* n. sp., *A. inornatum* n. sp.

New records: *Agathidium newari* Ang. & Dmz., *A. formosum* Ang. & Dmz., *A. laticorne* Port., *A. manasicum* Ang. & Dmz.

## INTRODUCTION

This is the first study on the fauna of Anisotomini of Thailand, and concerns 302 specimens of the genus *Agathidium* which have been recently collected (expedition I.XI-5.XII.1985) by Drs. H. Burckhardt and I. Löbl in 16 localities of this country.

This material includes four species which were already known from other regions of SE Asia and ten new species, here described.

One of the latter, *A. scutellare*, is particularly interesting, as it exhibits a deviating feature — clypeus protruberant — that eludes the basic characters of the *Agathidium*, thus it can be undoubtedly placed in this genus if its other characters are considered as a whole.

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We wish to present our thanks and congratulations to the researchers that have collected such an interesting material.

The specimens are deposited in the Museum of Natural History of Geneva (MNHG) and in Angelini's collection.

#### KEY TO SPECIES FROM THAILAND

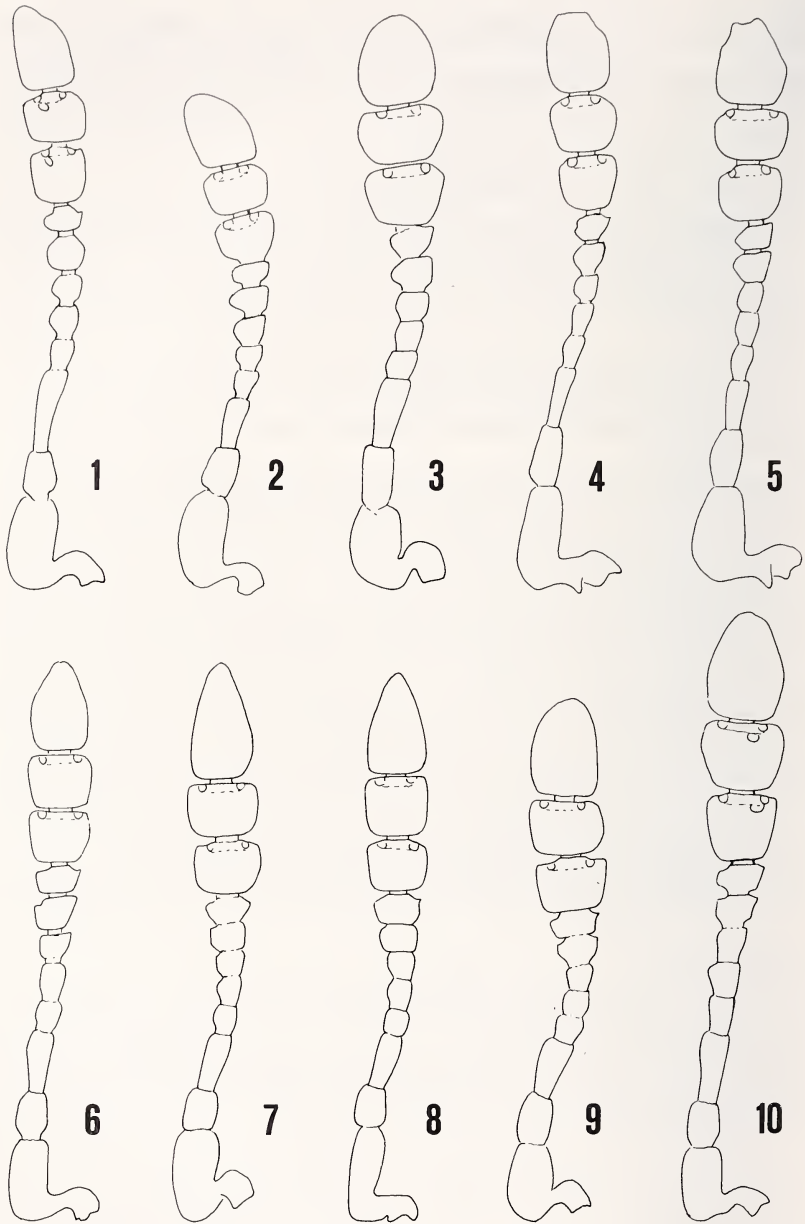
1. Clypeus without one short crest at each side. Width ratio pronotum/head not exceeding 1,5, except in *A. formosum*. Subg *Agathidium* s. str. . . . . . 2
- 1'. Clypeus with a short crest at each side. Width ratio pronotum/head 1,8-1,9. Subg. *Microceble* Ang. & Dmz. . . . . . 9
2. Anterior-lateral margins of head not distinctly raised up . . . . . 3
- 2'. Anterior-lateral margins of head distinctly raised up . . . . . 7
3. Metasternum not extremely reduced: femoral lines distinct . . . . . 4
- 3'. Metasternum extremely reduced in length; metacoxae close to mesocoxae; femoral lines indistinct . . . . . 5
4. Length 2,3-2,7 mm; dorsum black, antennae darker at club; 3rd antennal segment 1,8 times as long as the 2nd; tarsal formula: ♂ 5-5-4, ♀ 4-4-4. Microreticulation absent, puncturation nearly absent; sutural striae absent. Male hind femur: fig. 37; male copulatory organ: fig. 20; spermatheca: fig. 22. Thailand . . . . . *ducentesimun* n. sp.
- 4'. Length 1,8-1,9 mm; dorsum light reddish-brown, antennae without darker club; 3rd antennal segment as long as the 2nd; tarsal formula: ♂ 4-4-4, ♀ 4-4-4. Microreticulation absent, puncturation nearly absent; sutural striae absent. Male hind femur: fig. 38; male copulatory organ: fig. 21; spermatheca: fig. 23. Thailand . . . . . *ilvense* n. sp.
5. Clypeus not excavate: anterior-lateral margins of head converging at obtuse angle (fig. 26). Dorsum uniformly black, sometimes reddish-brown at head; antennae not darker at club; whole dorsum without microreticulation; punctures very small and sparse; 3rd antennal segment 1,2 times as long as the 2nd; tarsal formula: ♂ 4-4-4, ♀ 4-4-4. Length 2,1-2,5 mm. Male hind femur: fig. 27; male copulatory organ: fig. 28; spermatheca: fig. 29. Thailand . . . . . *scutellare* n. sp.
- 5'. Clypeus excavate, according to the general rule in the genus . . . . . 6
6. Male copulatory organ without abruptly expanded parameres (fig. 30). Dorsum uniformly black, everywhere sparsely punctate and without microreticulation; 3rd antennal segment as long as the 2nd; sutural striae absent; tarsal formula: ♂ 5-5-4. Length 2,55 mm. Male hind femur: fig. 39; Thailand . . . . . *incognitum* n. sp.
- 6'. Male copulatory organ with parameres abruptly expanded at apex (fig. 31). Dorsum light reddish-brown or black; 3rd antennal segment shorter than the 2nd; sutural striae absent; tarsal formula: ♂ 5-5-4, ♀ 4-4-4. Length 2,1-2,6 mm. Male hind femur: fig. 40; spermatheca: fig. 32. Thailand . . . . . *fungivorum* n. sp.
7. Antennae not darker at club. Dorsum reddish-brown, with distinct and regular puncturation, without microreticulation; 3rd antennal segment 1,2 times as long as the 2nd; sutural striae absent; tarsal formula: ♂ 5-5-4. Length 2,9-3,2 mm. Male hind femur: fig. 41. Nepal, Thailand . . . . . *newari* Ang. & Dmz.
- 7'. Antennae darker at club . . . . . 8

8. Male hind femora remarkably enlarged: fig. 42; width ratio pronotum/head = 1,7; pronotum with clear and regular puncturation. Dorsum reddish-brown at head and pronotum, black at elytra, without microreticulation; 3rd antennal segment 1,3 times as long as the 2nd; sutural striae absent; tarsal formula: ♂ 5-5-4, ♀ 5-4-4. Length 2,7-3,0 mm. Male copulatory organ: fig. 35; spermatheca: fig. 42. Tai Wan, Thailand . . . . . *formosum* Ang. & Dmz.
- 8'. Male hind femora not remarkably enlarged (fig. 43); width ratio pronotum/head = 1,5; punctures of pronotum very small. Dorsum reddish-brown at head and pronotum, darker at elytra; wholly lacking in microreticulation; 3rd antennal segment 1,3 times as long as the 2nd; sutural striae absent; tarsal formula: ♂ 5-5-4. Length 2,8-3,2 mm. Male copulatory organ: fig. 36. Thailand . . . . . *silvestre* n. sp.
9. Dorsum of head microsculptured either entirely or on clypeus at least; pronotum and elytra without microreticulation . . . . . 10
- 9'. Dorsum of head entirely without microsculpture; pronotum and elytra without microreticulation . . . . . 12
10. Dorsum of head entirely striolate. Dorsum dark reddish-brown or black with fine but distinct puncturation; antennae darker at club; 3rd antennal segment 1,7 times as long as the 2nd. Length 3,0-3,3 mm. South-East Asia. *laticorne* Port.
- 10'. Dorsum of head striolate only at clypeus . . . . . 11
11. Aedeagus apex (dorsal view) gently enlarged (fig. 50); 3rd antennal segment 1,6 times as long as the 2nd; basal part of spermatheca pear-shaped (fig. 55). Dorsum uniformly black, with fine and sparse puncturation. Length 2,5-2,8 mm. Male hind femur: fig. 45. Thailand . . . . . *silvarum* n. sp.
- 11'. Aedeagus apex (dorsal view) abruptly enlarged (fig. 53); 3rd antennal segment 1,3 times as long as the 2nd; spermatheca: fig. 56. Dorsum uniformly black or reddish-brown, with fine and sparse puncturation. Length 2,4-2,6 mm. Male hind femur: fig. 46. Thailand . . . . . *infuscatum* n. sp.
12. Length 2,3 mm. Dorsum reddish-brown at head and pronotum, black at elytra, with fine and sparse puncturation; 3rd antennal segment 1,3 times as long as the 2nd. Male hind femur: fig. 47; male copulatory organ: fig. 57. Thailand . . . . . *capitulatum* n. sp.
- 12'. Length 2,7-3,25 mm . . . . . 13
13. Length 2,7-3,0 mm. Dorsum reddish-brown; antennae without darker club; puncturation fine and sparse; 3rd antennal segment 1,5 times as long as the 2nd. India (Assam), Thailand . . . . . *manasicum* Ang. & Dmz.
- 13'. Length 3,25 mm. Dorsum dark reddish-brown, entirely with clear puncturation; 3rd antennal segment 1,3 times as long as the 2nd. Male hind femur: fig. 48; male copulatory organ: fig. 58. Thailand . . . . . *inornatum* n. sp.

**Agathidium (s. str.) ducentesimum** n. sp.

Figs 1, 11, 20, 22, 37

Length 2,3-2,7 mm (holotype ♂ 2,65 mm). Dorsum uniformly black; venter reddish-brown; antennae with darker club; legs reddish-brown. Microreticulation absent, puncturation nearly absent.



Figs 1-10.

Antenna of: 1, *Agathidium ducentesimum* n. sp.; 2, *A. ilvense* n. sp.; 3, *A. scutellare* n. sp.; 4, *A. incognitum* n. sp.; 5, *A. fungivorum* n. sp.; 6, *A. silvestre* n. sp.; 7, *A. silvarum* n. sp.; 8, *A. infuscatum* n. sp.; 9, *A. capitulatum* n. sp.; 10, *A. inornatum* n. sp.



Head: With sparse and very small punctures. Clypeal line absent. 3rd antennal segment 1,8 times as long as the 2nd and longer than 4th + 5th (fig. 1); Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: Punctures as on head. 1,3 times as broad as head, moderately transverse ( $W/L = 1,65$ ) and very convex ( $W/H = 1,46$ ). Dorsal and lateral outlines: fig. 11. Holotype: length 0,82 mm, width 1,36 mm, height 0,93 mm.

Elytra: As broad as pronotum, broader than long ( $W/L = 1,14$ ) and moderately convex ( $W/H = 1,82$ ). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1,20 mm, width 1,37 mm, height 0,75 mm.

Metathoracic wings absent. Meso- and metasternum: median carina absent, lateral lines absent, femoral lines complete.

Legs: Male hind femora with one weak tooth (fig. 37). Tarsal formula:  $\sigma$  5-5-4,  $\text{♀}$  4-4-4.

Male copulatory organ (fig. 20): Aedeagus slender, with spiralled proximal part, lateral margins subparallel, apex abruptly restricted, rounded and bent up; ventral piece U-shaped. Parameres slender, enlarged at their apex.

Spermatheca (fig. 22): Apical and basal part different in length and caliber.

Discussion: *A. ducentessimum* n. sp. shares with *A. ilvense* n. sp. habitus and lack of sutural striae and microreticulation; it differs from the latter in size, colour of dorsum and antennae, ratio 3rd/2nd of antennal segments, male tarsal formula.

Collecting methods: Sifting mosses, dead leaves and decaying wood in damp forest.

Types: THAILAND, Chiang Mai prov., Doi Inthanon, 2500 m, 9.XI.1985, leg. Burckhardt & Löbl, holotype  $\sigma$  N.6135, 5 $\sigma$  and 14 $\text{♀}$  paratypes N.6136-6144, 6150-6159 in MNHG, 5 $\sigma$  and 4 $\text{♀}$  paratypes N.6145-6149, 6160-6163 in AC.

Distribution: Thailand (Chiang Mai prov.).

### **Agathidium** (s. str.) **ilvense** n. sp.

Figs 2, 12, 21, 23, 38

Length 1,8-1,9 mm (holotype  $\sigma$  1,90 mm). Dorsum and venter light reddish-brown; antennae without darker club; legs reddish-brown. Microreticulation absent; punctures very small and sparse on the whole dorsum.

Head: Clypeal line absent. 3rd antennal segment as long as the 2nd and shorter than 4th + 5th (fig. 2); Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: 1,37 times as broad as head, moderately transverse ( $W/L = 1,46$ ) and very convex ( $W/H = 1,21$ ). Dorsal and lateral outline: fig. 11. Holotype: length 0,63 mm, width 0,92 mm, height 0,76 mm.

Elytra: As broad as pronotum, as broad as long and very convex ( $W/H = 1,21$ ). lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 0,85 mm, width 0,90 mm, height 0,52 mm.

Metathoracic wings absent. Meso- and metasternum: median carina absent, lateral lines absent, femoral lines complete.

Legs: Male hind femora with very weak tooth (fig. 38). Tarsal formula:  $\sigma$  4-4-4,  $\text{♀}$  4-4-4.

Male copulatory organ (fig. 21): Aedeagus slender, with ring-like proximal part, lateral margins gently convergent, apex abruptly restricted; ventral piece bifid. Parameres comparatively stout.

Spermatheca (fig. 23): Basal and apical parts moderately different in length and caliber.

Discussion: see discussion of *A. ducentesimum*.

Collecting methods: Sifting mosses and plant debris in very damp environments.

Types: THAILAND, Chiang Mai prov., Doi Suthep, 1400 m, 4-5.XI.1985, holotype ♂ N.6334 and 1♂ paratype N.6335 in MNHG; Chiang Mai prov., Doi Inthanon, 2500 m, 9.XI.1985, 1♂ and 2♀ paratypes N.6336-6338 in MNHG, 1♂ and 2♀ paratypes N.6139-6141 in AC. All leg. Burckhardt & Löbl.

Distribution: Thailand (Chiang Mai prov.).

### *Agathidium* (s. str.) *scutellare* n. sp.

Figs 3, 24-29

Length 2,1-2,5 mm (holotype ♂ 2,20 mm). Dorsum uniformly black or reddish-brown at head; venter reddish-brown; antennae without darker club; legs reddish-brown. Microreticulation absent; puncturation very sparse on the whole dorsum.

Head: Punctures very small and sparse. Clypeal line absent. Clypeus not excavate: anterior-lateral margins of head converging at obtuse angle (fig. 26). Eyes very flattened. One dimple at each side of clypeus. 3rd antennal segment 1,2 times as long as the 2nd and longer than 4th + 5th (fig. 3); Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures very small and sparse. 1,3 times as broad as head, not very transverse ( $W/L = 1,24$ ) and very convex ( $W/H = 1,3$ ). Dorsal and lateral outlines: figs 24 and 25. Holotype: length 0,85 mm, width 1,06 mm, height 0,81 mm.

Elytra: Punctures very small and sparse. As broad as pronotum, nearly as broad as long ( $W/L = 1,1$ ) and moderately convex ( $W/H = 1,63$ ). Lateral outline with weak humeral angle (fig. 25). Sutural striae absent. Holotype: length 0,96 mm, width 1,06 mm, height 0,65 mm.

Metathoracic wings absent. Meso- and metasternum: median carina absent, lateral lines absent, femoral lines indistinct owing to the extreme reduction of the metasternum.

Legs: Male hind femora not toothed (fig. 27). Tarsal formula: ♂ 4-4-4, ♀ 4-4-4.

Male copulatory organ (fig. 28): Aedeagus slender, with ring-like proximal part, lateral margins weakly sinuate, rounded apex; ventral piece small, not deeply bifid. Parameres comparatively stout, abruptly narrowing towards apex.

Spermatheca (fig. 29): Basal and apical parts not very different in caliber; a small tubercle at the duct connection.

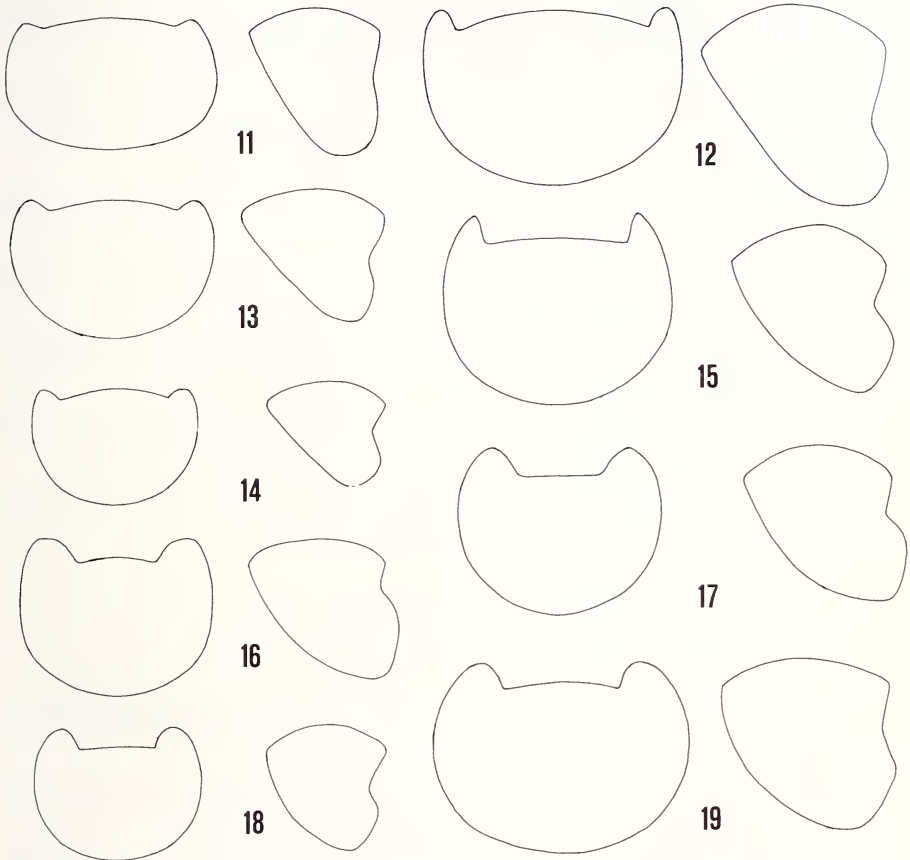
Discussion: *A. scutellare* n. sp. exhibits its more characteristic features in shape of clypeus, which is well in disagreement with the diagnosis of the genus itself. Nevertheless, it undoubtedly belongs to the genus *Agathidium* owing to a lot of further characters. Extreme reduction in length of mesosternum is a character that it shares with both *A. incognitum* n. sp. and *A. fungivorum* n. sp.

Collecting methods: Sifting soil at base of a big tree and plant debris in forests.

Types: THAILAND, Khao Yai National Park, NE of Bangkok, Khao Khieo, at north of the Air Force Check Point, 1150 m, 28.XI.1985, holotype ♂ N.6168, 20♂ and 20♀ paratypes N.6169-6216 in MNHG, 7♂ and 7♀ paratypes N.6217-6230 in AC; Khao Yai National Park, NE of Bangkok, outskirts of the Headquarter, 750-850 m, 26.XI-3.XII.1985, 4♂ and 6♀ paratypes N.6231-6240 in MNHG, 2♂ and 2♀ paratypes N.6241-6244 in AC; Khao Yai National Park, hills at east of Heo Suwat Waterfalls, 800-900 m, 1.XII.1985, 1♂ and 5♀ paratypes N.6245-6250 in MNHG, 1♂ paratype N.6251 in AC; Phetchaburi prov., Kaeng Krachan National Park, 300-600 m, 25-30 Km

from the Headquarters, 17.XI.1985, 1 ♀ paratype N.6252 in MNHG, 1 ♂ paratype N.6253 in AC; same locality, 450 m, 19.XI.1985, 1 ♀ paratype N.6254 in MNHG. All leg. Burckhardt & Löbl.

Distribution: Thailand (outskirts of Bangkok; Phetchaburi prov.).



FIGS 11-19.

Dorsal and lateral view of pronotum in: 11, *Agathidium ducentesimum* n. sp.; 12, *A. ilvense* n. sp.; 13, *A. incognitum* n. sp.; 14, *A. fungivorum* n. sp.; 15, *A. silvestre* n. sp.; 16, *A. silvarum* n. sp.; 17, *A. infuscatum* n. sp.; 18, *A. capitulatum* n. sp.; 19, *A. inornatum* n. sp.

***Agathidium* (s. str.) *incognitum* n. sp.**

Figs 4, 13, 30, 39

Length 2,55 mm (holotype and paratype). Dorsum uniformly black; venter reddish-brown; antennae with darker club; legs reddish-brown. Whole dorsum without microreticulation and with fine and sparse puncturation.

Head: Punctures very small and superficial, spaced from each other by 1.5 times their own diameter. Clypeal line absent. 3rd antennal segment as long as the 2nd and shorter than 4th + 5th (fig. 4); Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Puncturation as that of head. 1.3 times as broad as head, not very transverse ( $W/L = 1.38$ ) and very convex ( $W/H = 1.47$ ). Dorsal and lateral outlines: fig. 13. Holotype: length 0.90 mm, width 1.25 mm, height 0.85 mm.

Elytra: Punctures small and superficial as those of head, spaced from each other by 5-10 times their own diameter. A little narrower than pronotum, as broad as long and moderately convex ( $W/H = 1.49$ ). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.02 mm, width 1.12 mm, height 0.75 mm.

Metathoracic wings absent. Meso- and metasternum: median carina absent, lateral lines absent, femoral lines indistinct owing to the extreme reduction of metasternum; the latter with a pronounced median tubercle.

Legs: Male hind femora not thoothed (fig. 39). Tarsal formula:  $\sigma$  5-4-4,  $\varphi$  not known.

Male copulatory organ (fig. 30): Aedeagus comparatively stout, simple at base, with sinuate lateral margins and rounded apex; ventral piece small and U-shaped. Parameres distally enlarged.

Discussion: *A. incognitum* n. sp. is closely related to *A. fungivorum* n. sp., from which it differs in the characters of meso- and metasternum and shape of parameres.

Collecting methods: Sifting mosses and plant debris in damp forest.

Types: THAILAND, Chiang Mai prov., Dai Inthanon, 2450 m, 9.XI.1985, leg. Burckhardt & Löbl, holotype  $\sigma$  N.6255 in MNHG, 1  $\sigma$  paratype N.6256 in AC.

Distribution: Thailand (Chiang Mai prov.).

### ***Agathidium* (s. str.) *fungivorum* n. sp.**

Figs 5, 14, 31, 32, 40

Length 2.1-2.6 mm (holotype  $\sigma$  2.15 mm). Dorsum light reddish-brown, darker in one paratype; venter paler; antennae with darker club; legs reddish-brown. Whole dorsum without microreticulation and with fine and sparse puncturation.

Head: Punctures very small and superficial, spaced from each other by 1.4 times their own diameter. Clypeal line absent. Left mandible of male sometimes with a small horn (as in *A. abominabile* Ang. & Dmz. and *A. shermathangense* Ang. & Dmz.). 3rd antennal segment shorter than the 2nd and than 4th + 5th (fig. 5); Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures as small as on head, spaced from each other by 1.8 times their own diameter. 1.3 times as broad as head, not very transverse ( $W/L = 1.36$ ) and very convex ( $W/H = 1.45$ ). Dorsal and lateral outlines: fig. 14. Holotype: length 0.75 mm, width 1.02 mm, height 0.70 mm.

Elytra: Puncture as those of pronotum, spaced from each other by 4-10 times their own diameter. As broad as pronotum, slightly broader than long ( $W/L = 1.12$ ) and moderately convex ( $W/H = 1.78$ ). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 0.89 mm, width 1.00 mm, height 0.56 mm.

Metathoracic wings absent. Meso- and metasternum: median carina weak and incomplete, lateral lines complete, femoral lines indistinct owing to the extreme reduction of the metasternum; the latter with a pronounced median tubercle, which is shorter in the females.

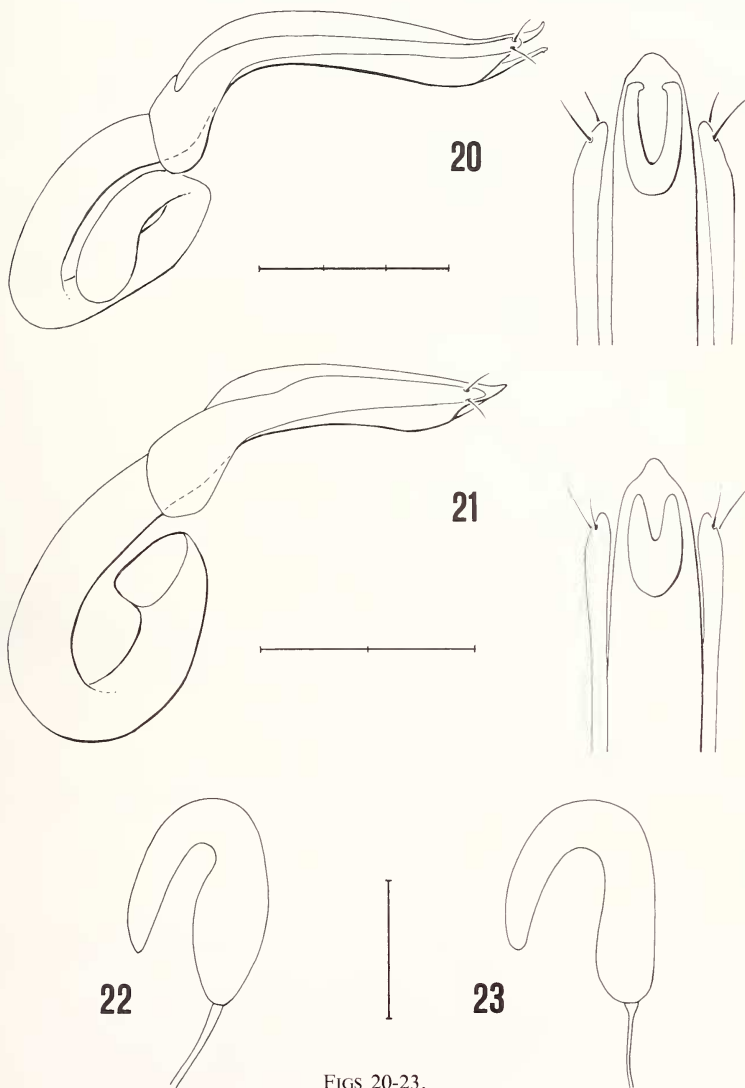
Legs: Male hind femora not thoothed (fig. 40). Tarsal formula: ♂ 5-5-4, ♀ 4-4-4.

Male copulatory organ (fig. 31): Aedeagus stout, simple at base, with lateral margins parallel and convergent at acute angle; ventral piece absent. Parameres remarkably enlarged at apex.

Spermatheca (fig. 32): Basal part pear-shaped; apical part slender and twisted.

Discussion: see discussion of *A. incognitum*.

Collecting methods: Sifting mosses and plant debris in very damp environment.



FIGS 20-23.

Male copulatory organ (lateral view and ventral view of apex) of: 20, *Agathidium ducentesimum* n. sp.; 21, *A. ilvense* n. sp. Spermatheca of: 22, *A. ducentesimum* n. sp.; 23, *A. ilvense* n. sp. Scale: 1 division = 0,1 mm.



Types: THAILAND, Chiang Mai prov., Doi Inthanon, 1650 m, 7.XI.1985, holotype ♂ N.6257, 2♂ and 2♀ paratypes N.6258-6261 in MNHG; same locality, 2500 m, 9.XI.1985, 1♂ paratype N.6262 in AC; Chiang Mai prov., Doi Suthep, south versant, 1450 m, 1♀ paratype N.6263 in AC. All leg. Burckhardt & Löbl.

Distribution: Thailand (Chiang Mai prov.).

***Agathidium* (s. str.) *newari* Ang. & Dmz.**

Fig. 41

*Agathidium* (s. str.) *newari* Angelini & De Marzo, 1985: 42; 1986b: 838.

Material: THAILAND, Chiang Mai prov., Mae Nang Kaeo, 54 Km NE from Chiang Mai, 900 m, 3.XI.1985, leg. Burckhardt & Löbl, 1♂ in MNHG.

Collecting methods: Sifting dead leaves and decaying branches in a ravine.

Discussion: This specimen differs from the types in its larger size (3,5 mm), colour (uniformly black at dorsum), male hind femora less enlarged (fig. 41), dorsal outline of aedeagus (clearly more enlarged). We suspect it belongs to a separate subspecies, but examination of further specimens is necessary.

Distribution: Nepal; Thailand (Chiang Mai prov.).

New record from Thailand.

***Agathidium* (s. str.) *formosum* Ang. & Dmz.**

Figs 33, 35, 42

*Agathidium* (s. str.) *formosum* Angelini & De Marzo, 1984: 32.

Material: THAILAND, Chiang Mai prov., Doi Suthep, 1050 m, 5.XI.1985, leg. Burckhardt & Löbl, 1 ex. in MNHG, 1 ex. in AC.

Discussion: These new specimens differ from the types in shape of aedeagus apex (fig. 35) and male hind femora (fig. 33), and the smaller size of the spermatheca (fig. 42). We suspect they belong to a separate subspecies, but examination of further specimens from Thailand is obviously necessary.

Distribution: Tai Wan; Thailand (Chiang Mai prov.).

New record from Thailand.

Collecting methods: Sifting decaying branches, barks and fungi in a very damp environment.

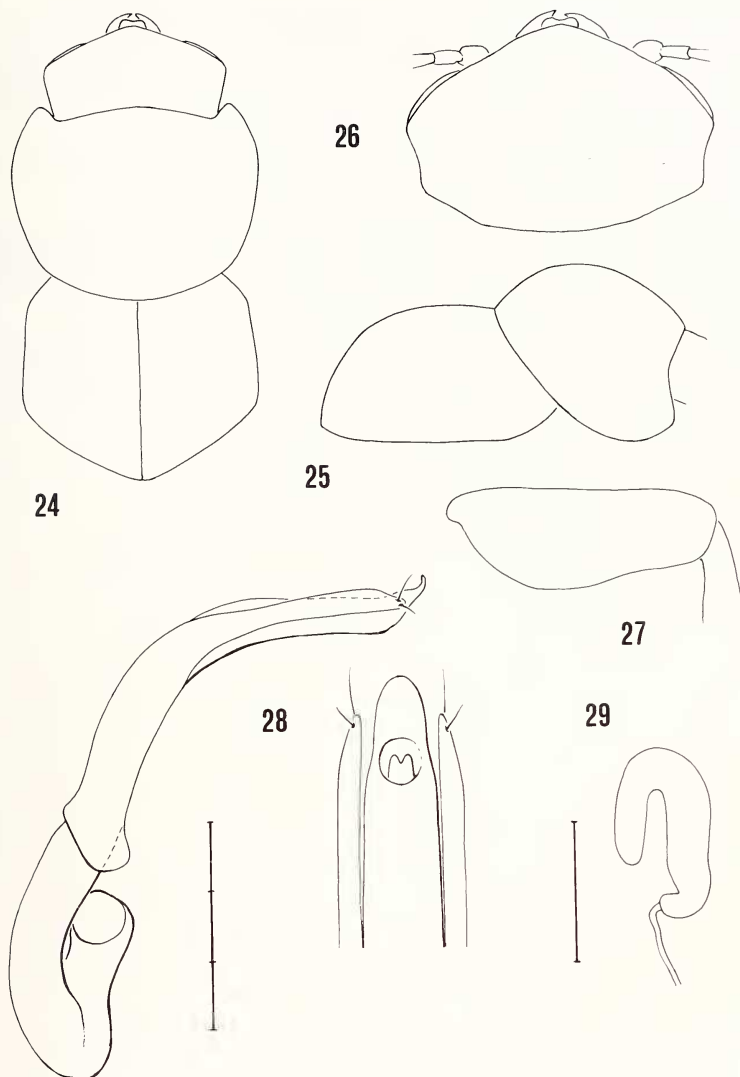
***Agathidium* (s. str.) *silvestre* n. sp.**

Figs 6, 15, 36, 43

Length 2,8-3,2 mm (holotype ♂ 3,2 mm). Dorsum reddish-brown, paler at elytra; venter reddish-brown; antennae darker at club; legs reddish-brown. Whole dorsum without microreticulation; puncturation fine and sparse on pronotum and elytra, nearly absent on head.

Head: Punctures very small and sparse. Clypeal line absent. Anterior-lateral margins raised up. 3rd antennal segment 1,3 times as long as the 2nd and shorter than 4th + 5th (fig. 6); Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.





FIGS 24-29.

*Agathidium scutellare* n. sp.: 24, habitus; 25, lateral view of pronotum and elytra; 26, head; 27, male hind femur; 28, male copulatory organ (lateral view and ventral view of apex); 29, spermatheca. Scale: 1 division = 0,1 mm.

Pronotum: Punctures small and superficial, spaced from each other by 5-10 times their own diameter. 1,5 times as broad as head, not very transverse ( $W/L = 1,38$ ) and very convex ( $W/H = 1,25$ ). Dorsal and lateral outlines: fig. 15. Holotype: length 1,08 mm, width 1,5 mm, height 1,20 mm.

Elytra: Punctures larger and more impressed than those of pronotum, spaced from each other by 5-10 times their own diameter. Nearly as broad as pronotum, slightly broader than long ( $W/L = 1,12$ ) and not very convex ( $W/H = 1,86$ ). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1,42 mm, width 1,60 mm, height 0,86 mm.

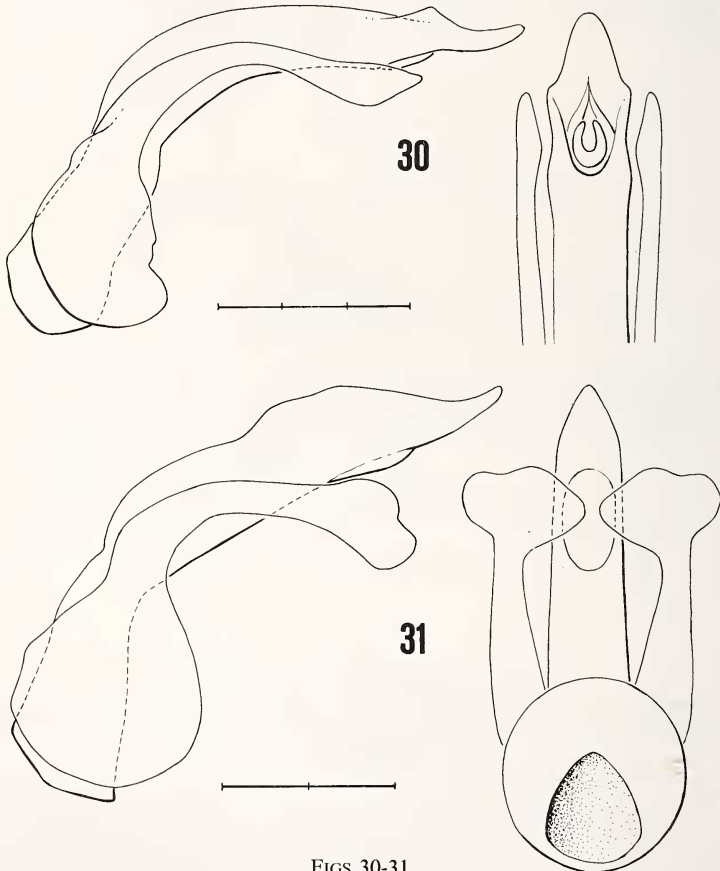
Metathoracic wings present. Meso- and metasternum: median carina clear, lateral lines absent, femoral line incomplete and very short.

Legs: Male hind femora not toothed (fig. 43). Tarsal formula: ♂ 5-5-4, ♀ not known.

Male copulatory organ (fig. 36): Aedeagus slender, with hook-like proximal part, lateral margins weakly sinuate and abruptly convergent, subacute apex; ventral piece small and bifid. Parameres moderately enlarged at apex.

Discussion: *A. silvestre* n. sp. is closely related to *A. shillongense* Ang. & Dmz (ANGELINI & DE MARZO 1986) owing to habitus, colour and length ratio 3rd/2nd in antennal segments; it differs in aedeagus shape and absence of Hamann's vesicles.

Collecting methods: Sifting plant debris in a very damp ravine.



FIGS 30-31.

Male copulatory organ (lateral view and ventral view of apex) of: 30, *Agathidium incognitum* n. sp.; 31, *A. fungivorum* n. sp. Scale: 1 division = 0,1 mm.

Types: THAILAND, Khao Yai National Park, NE of Bangkok, outskirts of the Headquarter, 750-850 m, 26.XI-3.XII.1985, holotype ♂ N.6266 in MNHG; Chiang Mai prov., Doi Suthep, south versant, 1450 m, 4.XI.1985, 1♂ paratype N.6267 in AC. All leg. Burckhardt & Löbl.

Distribution: Thailand (outskirts of Bangkok; Chiang Mai Prov.).

**Agathidium (Microceble) laticorne** Port.

*Agathidium (Cyphocele) laticorne* Portevin, 1922: 58.

*Agathidium (Microceble) laticorne*: ANGELINI & DE MARZO 1986a: 442.

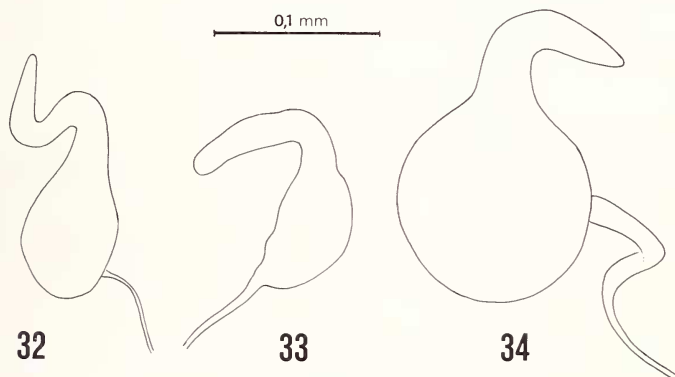
Material: THAILAND, Khao Yai National Park, NE of Bangkok, outskirts of the Headquarter, 750-850 m, 26.XI-3.XII.1985, 1 ex. in MNHG, 1 ex. in AC; Chanthaburi prov., Khao Sabap National Park, outskirts of Phliu Waterfalls, 150-300 m, 23-24.XI.1985, 11 exx. in MNHG, 3 exx. in AC. All leg. Burckhardt & Löbl.

Collecting methods: Sifting mosses and plant debris.

Discussion: These specimens are fully in agreement with the typical characters, except the pronotal microreticulation, which is uniform: we suspect they belong to a separate subspecies.

Distribution: SE Asia (Pakistan; Nepal; Bhutan; India; Sri Lanka; Viet Nam, Malaysia; Indonesia, Thailand).

New record for Thailand.



FIGS 32-34.

Spermatheca of: 32, *Agathidium fungivorum* n. sp.; 33, *A. formosum* Ang. & Dmz.; 34, *A. sp.*, prope *A. laticorne* Port.

**Agathidium (Microceble) sp.**, prope *A. laticorne* Port.

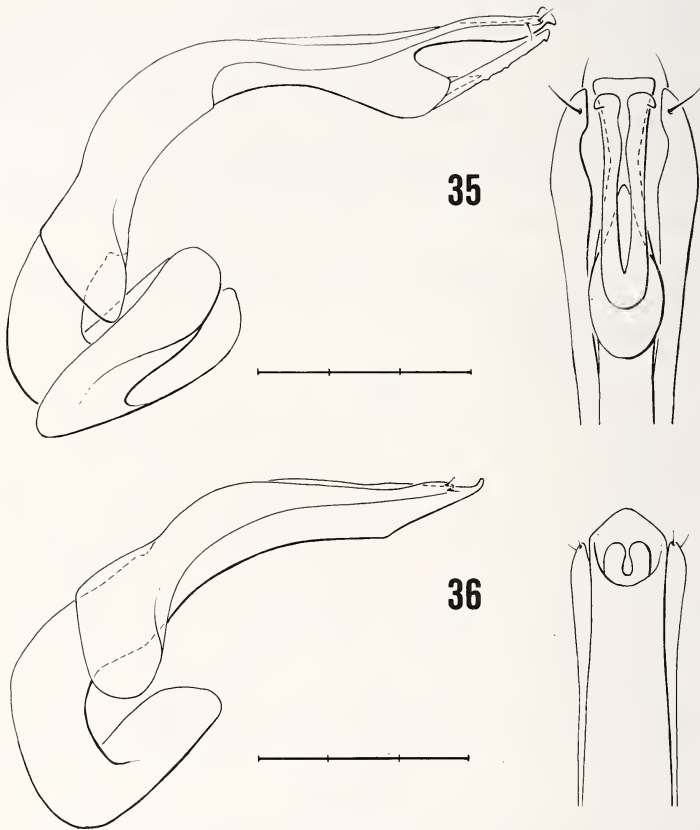
Figs 34, 44

Material: THAILAND, Chiang Mai prov., 1 Km above Mae Nang Kaeo, road from Chiang Mai to Chiang Rai, 54 Km from Chiang Mai, 900 m, 3.XI.1985, 1 ex. in MNHG; Chiang Mai prov., road to Wab Pang An, parting of the roads Chiang Mai-Chiang Rai, 50 Km from Chiang Mai, 900 m, 3.XI.1985, 3 exx. in MNHG, 2 exx. in AC; Chiang Mai prov., Doi Suthep, north versant, 1550 m, 4.XI.1985, 1 ex. in MNHG; same locality, 1400 m, 5.XI.1985, 8 exx. in MNHG, 3 exx. in AC. All leg. Burckhardt & Löbl.

Collecting methods: Sifting dead leaves and decaying wood in very damp environment.

Discussion: These specimens fully agree with the types of *A. laticorne* Port. in several characters, but they differentiate in shape of male hind femora and spermatheca (figs 34 and 44). Further distributional data are necessary to realize whether they belong to a separate species or to a new subspecies of *A. laticorne*.

Distribution: Thailand.



FIGS 35-36.

Male copulatory organ (lateral view and ventral view of apex) of: 35, *Agathidium formosum* Ang. & Dmz.; 36, *A. silvestre* n. sp. Scale: 1 division = 0,1 mm.

***Agathidium (Microceble) silvarum* n. sp.**

Figs 7, 16, 45, 49, 50, 51, 55

Length 2,5-2,8 mm (holotype ♂ 2,60 mm). Dorsum uniformly black; venter reddish-brown; antennae darker at 9th and 10th segments; legs reddish-brown. Whole dorsum without microreticulation and with fine and sparse puncturation.

Head: Clypeus finely microsculptured (wrinkled). Punctures small and superficial, spaced from each other by 2-5 times their own diameter. Clypeal line absent. Anterior-lateral margins distinctly raised up. One dimple and a short crest at each side of clypeus. 3rd antennal segment 1,6 times as long as the 2nd and as long as 4th + 5th (fig. 7); Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures as small and superficial as on head or a little larger and more impressed, spaced from each other by 2-6 times their own diameter. 1,8 times as broad as head, moderately transverse ( $W/L = 1,43$ ) and very convex ( $W/H = 1,33$ ). Dorsal and lateral outlines: fig. 16. Holotype: length 0,86 mm, width 1,23 mm, height 0,92 mm.

Elytra: Punctures just a little larger and more impressed than on pronotum, spaced from each other by 6-10 times their own diameter. As broad as pronotum, as broad as long and moderately convex ( $W/H = 1,53$ ). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1,16 mm, width 1,23 mm, height 0,80 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora with one weak distal tooth (fig. 45). Tarsal formula:  $\sigma$  5-5-4,  $\varphi$  5-4-4.

Male copulatory organ (figs 49-51): Aedeagus comparatively stout, with hook-like proximal part, lateral margins concealed by the parameres, apex and ventral piece deeply bifid.

Spermatheca (fig. 55): Basal part pear-shaped, with a slightly pronounced tubercle at the duct connection; apical part very short.

Discussion: *A. silvarum* n. sp. is closely related to the next species, *A. infuscatum* n. sp., owing to habitus, colour and presence of microsculpture on head. These differ from each other in aedeagus apex and spermatheca shape.

Collecting methods: Sifting litter or plant debris in forest.

Types: THAILAND, Khao Yai National Park, outskirts of the headquarters, 750-840 m, 26.XI-3.XII.1985, holotype  $\sigma$  N.6269 and 1  $\varphi$  paratype N.6270 in MNHG, 1  $\varphi$  paratype N.6271 in AC; Phetchaburi prov., Kaeng Krachan National Park, 30 Km, from the headquarters, 300-400 m, 17.XI.1985, 1  $\varphi$  paratype N.6272 in MNHG; same locality, 35 Km from the headquarters, 19.XI.1985, 1  $\sigma$  paratype N.6273 in MNHG, 1  $\sigma$  paratype N.6274 in AC. All leg. Burckhardt & Löbl.

Distribution: Thailand (outskirts of Bangkok; Phetchaburi prov.).

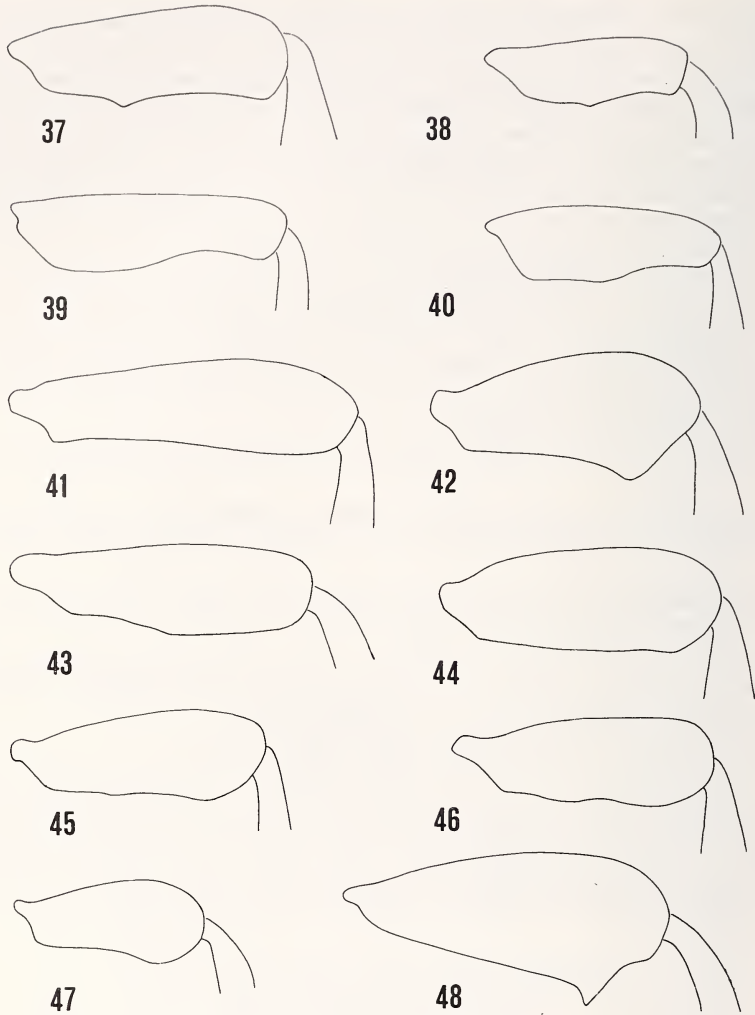
### ***Agathidium (Microceble) infuscatum* n. sp.**

Figs 8, 17, 46, 52, 53, 54, 56

Length 2,4-2,6 mm (holotype  $\sigma$  2,60 mm). Dorsum uniformly black, reddish-brown with paler sides in some paratypes; venter reddish-brown; antennae darker at 9th and 10th segments; legs reddish-brown. Whole dorsum without microreticulation and with fine and sparse punctation.

Head: Clypeus finely microsculptured (wrinkled). Punctures small and superficial, spaced from each other by 3-6 times their own diameter. Clypeal line absent. Anterior-lateral margins distinctly raised up. One dimple and one short crest at each side of clypeus. 3rd antennal segment 1,3 times as long as the 2nd and as long as 4th + 5th (fig. 8); Hamann's organ: gutter without vesicles in both 9th and 10th antennal segment.

Pronotum: Punctures less impressed than those of head, spaced from each other by 4-8 times their own diameter. 1,8 times as broad as head, moderately transverse ( $W/L = 1,42$ ) and very convex ( $W/H = 1,24$ ). Dorsal and lateral outlines: fig. 17. Holotype: length 0,90 mm, width 1,28 mm, height 1,03 mm.



FIGS 37-48.

Male hind femur of: 37, *Agathidium ducentesimum* n. sp.; 38, *A. ilvense* n. sp.; 39, *A. incognitum* n. sp.; 40, *A. fungivorum* n. sp.; 41, *A. newari* Ang. & Dmz.; 42, *A. formosum* Ang. & Dmz.; 43, *A. silvestre* n. sp.; 44, *A. sp.*, prope *A. laticorne* Port.; 45, *A. silvarum* n. sp.; 46, *A. infuscatum* n. sp.; 47, *A. capitulatum* n. sp.; 48, *A. inornatum* n. sp.

Elytra: Punctures larger and more impressed than on head, spaced from each other by 3-10 times their own diameter. Just a little broader than pronotum, as broad as long and moderately convex ( $W/H=1,63$ ). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1,20 mm, width 1,31 mm, height 0,80 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.



Legs: Male hind femora not thoothed (fig. 46). Tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 52-54): Aedeagus comparatively stout, enlarged and trifid at apex; ventral piece deeply bifid. Parameres stout, concealing the lateral margins of aedeagus.

Spermatheca (fig. 56): Basal part stout, with a pronounced tubercle at the duct connection; apical part slender, moderately long.

Discussion: see discussion of *A. silvarum*.

Collecting methods: Sifting dead leaves, decaying wood and fungi in very damp environment.

Types: THAILAND, Chiang Mai Prov., Doi Inthanon, 1250 m, 8.XI.1985, holotype ♂ N.6275, 14♂ and 13♀ paratypes N.6276-6302 in MNHG, 6♂ and 5♀ paratypes N.6303-6313 in AC; same data, 1650 m, 7.XI.1985, 2♂ paratypes N.6314-6315 in MNHG; Chiang Mai prov., Doi Suthep, north versant, 1400 m, 5.XI.1985, 2♂ paratypes N.6316-6317 in MNHG; Chiang Mai prov., 1 Km above Mae Nang Kaeo, 900 m, 3.XI.1985, 3♀ paratypes N.6318-6320 in MNHG, 1♂ paratype N.6321 in AC; Chiang Mai prov., Mae Nang Kaeo, 950 m, 3.XI.1985, 1♂ paratype N.6322 in MNHG. All leg. Burckhardt & Löbl.

Distribution: Thailand (Chiang Mai prov.).

#### **Agathidium (Microceble) capitulatum** n. sp.

Figs 9, 18, 47, 57

Length 2,3 mm (holotype ♂). Dorsum reddish-brown at head and pronotum, black at elytra; venter reddish-brown; antennae darker at 9th and 10th segments; legs reddish-brown. Whole dorsum without microreticulation and with sparse and superficial puncturation.

Head: Punctures small but impressed, spaced from each other by 1-6 times their own diameter. Clypeal line absent. Anterior-lateral margins distinctly raised up. One dimple and one short crest at each side of clypeus. 3rd antennal 1,3 times as long as the 2nd and longer than 4th + 5th (fig. 9); Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Microreticulation vague. Punctures as small and impressed than those of head, spaced from each other by 4-6 times their own diameter. 1,8 times as broad as head, little transverse ( $W/L = 1,35$ ) and very convex ( $W/H = 1,27$ ). Dorsal and lateral outlines: fig. 18. Holotype: length 0,78 mm, width 1,06 mm, height 0,83 mm.

Elytra: Microreticulation vague. Punctures larger and more impressed than on head, spaced from each other by 2-6 times their own diameter. As broad as pronotum, as broad as long and moderately convex ( $W/H = 1,51$ ). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 0,70 mm, width 1,06 mm, height 0,70 mm.

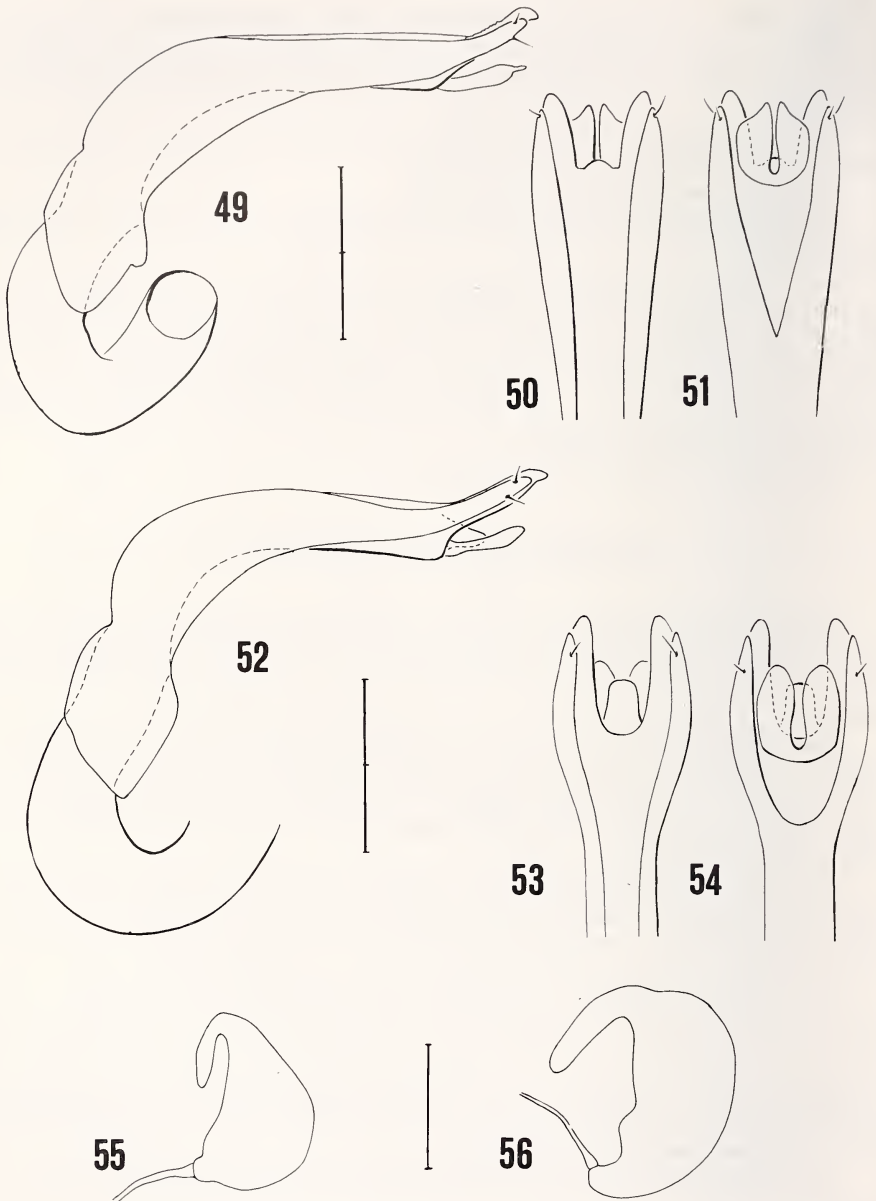
Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines incomplete, femoral lines incomplete.

Legs: Male hind femora distally enlarged (fig. 47). Tarsal formula: ♂ 5-5-4, ♀ not known.

Male copulatory organ (fig. 57): Aedeagus slender, with convolute proximal part, lateral margins abruptly convergent at apex into a small rounded tip; ventral piece not deeply bifid. Parameres stout, gently tapering towards apex.

Discussion: *A. capitulatum* n. sp. is similar to the following species, *A. inornatum* n. sp. and *A. manasicum* Ang. & Dmz., in habitus and characters of dorsum; it differentiates in size and male copulatory organ shape.

Collecting methods: Sifting plant debris in forest.



FIGS 49-56.

Male copulatory organ (lateral view and dorsal and ventral view of apex) of: 49-51, *Agathidium silvarum* n. sp.; 52-54, *A. infuscatum* n. sp. Spermatheca of: 55, *A. silvarum* n. sp.; 56, *A. infuscatum* n. sp. Scale: 1 division = 0,1 mm.

Type: THAILAND, Khao Yai National Park, north-east of Bangkok, outskirts of the headquarters, 800 m, 26.XI.1985, leg. Burckhardt & Löbl, holotype ♂ N.6323 in MNHG.

Distribution: Thailand (outskirts of Bangkok).

**Agathidium (*Microceble*) manasicum** Ang. & Dmz.

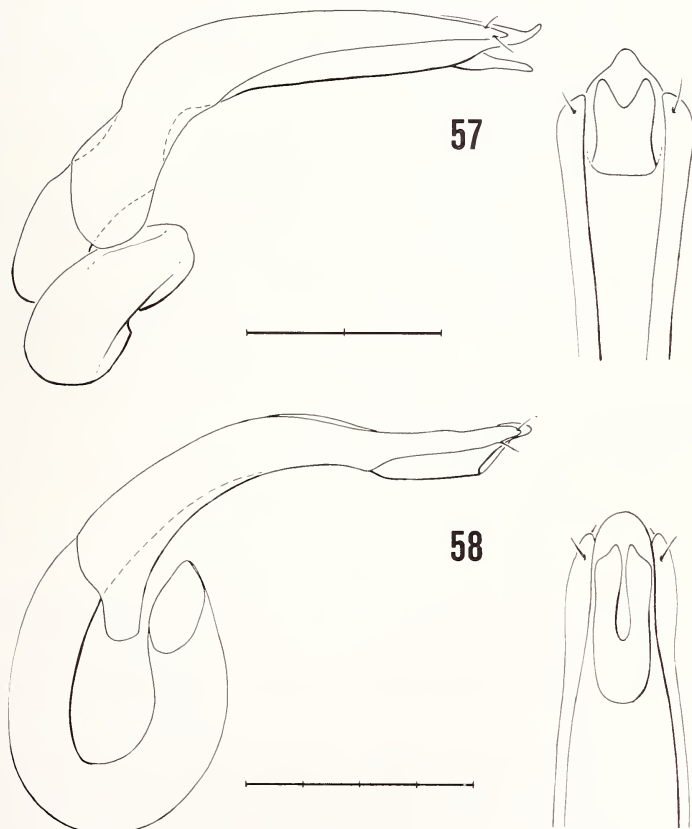
*Agathidium (Microceble) manasicum* Angelini & De Marzo, 1986a: 445.

Material: THAILAND, Chiang Mai prov., Doi Suthep, south versant, 1450 m, 4.XI.1985, 2 exx. in MNHG; same locality, north versant, 1000-1400 m, 5.XI.1985, 58 exx. in MNHG, 14 exx. in AC; Chiang Mai prov., Doi Inthanon, 1250 m, 6.XI.1985, 1 ex. in MNHG. All leg. Burckhardt & Löbl.

Collecting methods: Sifting plant debris, decaying wood and fungi in very damp environments.

Discussion: The characters of these new specimens are fully in agreement with those of the types.

Distribution: India (Assam), Thailand (Chiang Mai prov.). — New record for Thailand.



FIGS 57-58.

Male copulatory organ (lateral view and ventral view of apex) of: 57, *Agathidium capitulatum* n. sp.; 58, *A. inornatum* n. sp. Scale: 1 division = 0,1 mm.

**Agathidium (Microceleb) inornatum** n. sp.

Figs 10, 19, 48, 58

Length 3,25 mm (holotype ♂). Dorsum uniformly reddish-brown; venter reddish-brown; antennae darker at 9th and 10th segments; legs reddish-brown. Whole dorsum without microreticulation and with impressed puncturation.

Head: Punctures large and impressed, spaced from each other by 1-3 times their own diameter. Clypeal line absent. Anterior-lateral margins distinctly raised up. One dimple and one short crest at each side of clypeus. 3rd antennal segment 1,3 times as long as the 2nd and shorter than 4th + 5th (fig. 10); Hamann's organ: gutter with one flattened vesicle in both 9th and 10th antennal segments.

Pronotum: Punctures smaller and more superficial than those of head, spaced from each other by 1-5 times their own diameter. 1,8 times as broad as head, moderately transverse ( $W/L = 1,5$ ) and very convex ( $W/H = 1,45$ ). Dorsal and lateral outlines: fig. 18. Holotype: length 1,07 mm, width 1,60 mm, height 1,10 mm.

Elytra: Punctures as large as those of pronotum, spaced from each other by 2-6 times their own diameter. Just a little broader than pronotum, a little broader than long ( $W/L = 1,19$ ) and very convex ( $W/H = 1,25$ ). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1,47 mm, width 1,76 mm, height 1,40 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora with one large tooth (fig. 48). Tarsal formula: ♂ 5-5-4, ♀ not known.

Male copulatory organ (fig. 58): Aedeagus slender, with hook-like proximal part, lateral margins sinuate, broadly rounded apex, deeply bifid ventral piece. Parameres stout, abruptly tapered near their apex.

Discussion: see discussion of *A. capitulatum*.

Collecting methods: Sifting decaying wood, barks and fungi in very damp environment.

Type: THAILAND, Chiang Mai prov., Doi Suthep, north versant, 1050 m, 5.XI.1985, leg. Burckhardt & Löbl, 1♂ holotype N.6268 in MNHG.

Distribution: Thailand (Chiang Mai prov.).

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